

## REMARKS

Claims 1-12 are pending and stand rejected. Claim 6 has been amended to correct a punctuation error. Claim 7 has been amended for the purpose of clarity. In view of the above amendments and following remarks, reconsideration and allowance of Claims 1-12 is respectfully requested.

### The Rejection of Claims 1-12 Under 35 U.S.C. § 103(a)

Claims 1-12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lui et al., *Advanced Materials* 14 in view of McElhanon et al., *Org. Lett.* 3. Withdrawal of the rejection is requested for the following reasons.

Three basic criteria must be met to establish a *prima facie* case of obviousness. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Manual of Patent Examining Procedure (M.P.E.P.) (8th ed. Aug. 2001; rev. May 2004) § 2143.

For the reasons set forth below, applicants respectfully submit that the burden of establishing a *prima facie* case of obviousness has not been met because the cited references fail to teach or suggest each and every limitation of the claimed invention.

Claim 1 is an independent claim directed to a crosslinkable polymer that includes (1) one or more polarizable chromophore moieties; (2) one or more diene moieties, and (3) one or more dienophile or dienophile precursor moieties, wherein the diene and dienophile are reactive to 4+2 cycloaddition products. Claims 2-6 and 11 depend from Claim 1. A representative crosslinkable polymer of Claim 1 is illustrated schematically in FIGURE 1.

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Claim 7 is an independent claim directed to a crosslinked polymer. As amended, Claim 7 recites a crosslinked polymer comprising (1) aligned, polarizable chromophore moieties and (2) one or more 4+2 cycloaddition moieties, wherein the 4+2 cycloaddition moieties are reversibly, thermally reactive to provide diene moieties and dienophile moieties. Claims 8-10 and 12 depend from Claim 7. A schematic illustration of the crosslinked polymer of Claim 7 is shown in FIGURE 4C.

The Lui reference describes a linear polymer having pendant groups that include both a chromophore moiety and a dendron moiety. The McElhanon reference describes a method for making dendrimers using the Diels-Alder reaction. The combined teachings of the cited references fail to teach each and every limitation of independent Claims 1 and 7.

Regarding Claim 1, the cited references fail to teach or suggest a crosslinkable polymer that includes one or more diene moieties (see Claim 1, paragraph (b)) or one or more dienophile or dienophile precursor moieties (see Claim 1, paragraph (c)).

Regarding Claim 7, the cited references fail to teach or suggest a crosslinked polymer of any kind. Furthermore, the cited references fail to teach or suggest a crosslinked polymer that includes one or more 4+2 cycloaddition moieties, wherein the 4+2 cycloaddition moieties are reversibly, thermally reactive to provide a polymer having diene moieties and dienophile moieties (see Claim 7, paragraph (b)). Although the McElhanon reference describes a dendrimer that includes one or more 4+2 cycloaddition moieties, the reference fails to describe a polymer having diene moieties and dienophile moieties resulting from the thermal reversion of the 4+2 cycloaddition moiety, as required by Claim 7.

A *prima facie* case of obviousness requires that the prior art references, when combined, must teach or suggest all the claim limitations. Because the cited references fail to teach or suggest (1) a crosslinkable polymer that includes one or more diene moieties and one or more

dienophile or dienophile precursor moieties (as required by Claim 1) and (2) a crosslinked polymer that includes one or more 4+2 cycloaddition moieties, wherein the 4+2 cycloaddition moieties are reversibly, thermally reactive to provide a polymer having diene moieties and dienophile moieties (as required by Claim 7), the *prima facie* case of obviousness is improper. Accordingly, withdrawal of the rejection is requested.

Conclusion

In view of the above amendments and foregoing remarks, applicants believe that Claims 1-12 are in condition for allowance. If any issues remain that may be expeditiously addressed in a telephone interview, the Examiner is encouraged to telephone applicants' attorney at 206.695.1755.

Respectfully submitted,

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